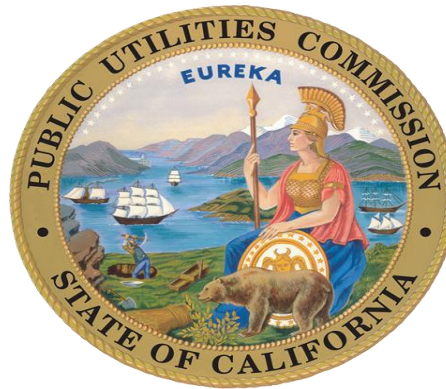




Workshop

Energy Storage Track 1, R.15-03-011

August 19, 2015



Eligibility of New Energy Storage Technologies
Safety of Energy Storage
Safety Codes and Standards for Storage
Non-IOU Experiences with Energy Storage
IOU Experiences with Energy Storage

Arthur O'Donnell, Hal Kane, and Manisha Lakhanpal
Risk Assessment Section, Safety and Enforcement Division
and Grid Planning and Reliability Section, Energy Division
California Public Utilities Commission





Safety and Emergency Information

- In the event of an emergency, please proceed calmly out the exits.
- The Temporary Evacuation Location has been relocated to the Civic Center Plaza.
- It is located on the other side of City Hall. Exit the building at Van Ness and McAlister streets and walk past City Hall.





Practical Information

WiFi Access:

login: guest

password: password

Restrooms:

out the Hearing Room doors
and down the far end of the
hallway.

- Call in information:
Phone line: 1-866-859-2737
Participant code: 1682922
- WebEx:
<https://van.webex.com/van/j.php?MTID=mdf26e5b7b99c751db3c6770fd976c8df>

Meeting Number: 742 051 947
Meeting Password: Safe2015!





Objectives for today's workshop

1. Briefly discuss eligibility of energy storage technology under track 1 of the proceeding, and
2. Discuss safety of energy storage, including:
 1. Codes and standards for storage technology and integration
 2. Non-IOU experiences installing and operating energy storage
 3. IOU experiences installing and operating energy storage
 4. SED storage safety inspections and the CPUC proceeding





Workshop Agenda

August 19, 2015

CPUC Auditorium	10:00 AM
Introduction- Safety & Enforcement Division and Energy Division	10:00 AM – 10:05 AM
1. Eligibility of Energy Storage Technologies Update on filed comments and brief comments from parties	10:05 AM – 10:20 AM
2. Safety of Energy Storage Technologies Codes, standards, utility experiences, recent incidents, DOE/Sandia working group	10:20 AM – 10:30 AM
3. Safety standards and certification for energy storage Speakers from: Underwriters Laboratories and Sandia National Labs	10:30 AM – 11:30 PM
Networking Break	11:30 AM – 11:45 AM
4. Non-IOU experience with energy storage Speaker from: GreenCharge and California Energy Storage Alliance (CESA)	11:45 AM – 12:30 PM
LUNCH	12:30 PM – 1:30 PM
5. IOU experience with energy storage Speakers from: SDG&E, SCE, and PG&E	1:30 PM – 3:45 PM
Networking Break	3:45 PM – 4:00 PM
6. Discussion: SED inspection protocols or checklists, Potential changes to G.O. 167 and 174, and next steps for SED and energy storage safety	4:00 PM – 4:30 PM





R.15-03-011

Eligibility (Phase 1)

Phase 1 will focus on new technologies not previously considered in preparation for the 2016 energy storage solicitation process.





Pub. Util. Code § 2835(a)

- 1) “Energy storage system” means commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy.





Pub. Util. Code § 2835(a)

2) Characteristics:

(A) Be either centralized or distributed.

(B) Be either owned by a load-serving entity or local publicly owned electric utility, a customer of a load-serving entity or local publicly owned electric utility, or a third party, or is jointly owned by two or more of the above.





Pub. Util. Code § 2835(a)

- 3) ES System shall be **cost effective** and either **reduce GHG emissions, reduce peak demand, defer/substitute investment** in generation, transmission, or distribution assets, or **improve grid reliability**.





Pub. Util. Code § 2835(a)

4) ES shall do the following:

- (A) Use mechanical, chemical, or thermal processes to store energy that was generated at one time for use at a later time.
- (B) Store thermal energy for direct use for heating or cooling at a later time in a manner that avoids the need to use electricity at that later time.
- (C) Use mechanical, chemical, or thermal processes to store energy generated from renewable resources for use at a later time.
- (D) Use mechanical, chemical, or thermal processes to store energy generated from mechanical processes that would otherwise be wasted for delivery at a later time.





Eligibility Comments and Q/A





Flywheel Storage Device Blast in Poway, CA June 10, 2015





Kahuku Wind Facility Fire, 2012

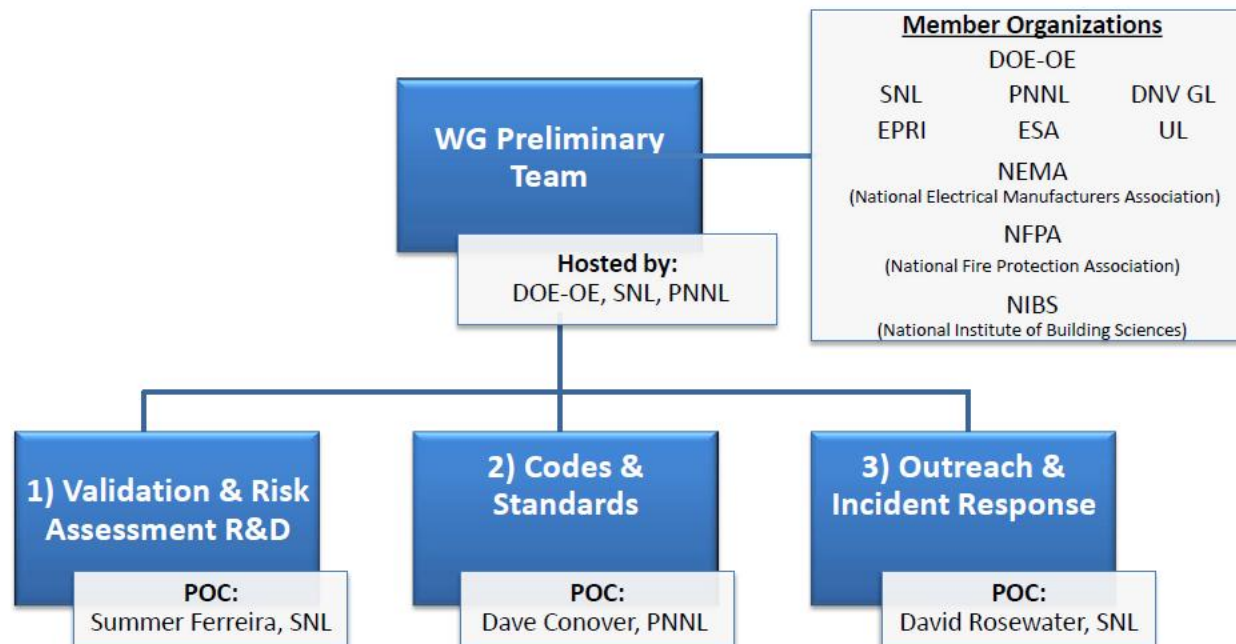
"The fire had spread through some of the batteries and was now in front of the door so the use of the dry chemical was not sufficient to knock down the fire to the point where we could extinguish,"

-- Capt. Terry Seelig,
Honolulu Fire
Department





Energy Storage Safety Working Group (ESSWG) Organizational Structure





Standards and Certification for Safety of Energy Storage

Speakers: Underwriters' Laboratory & Sandia National Labs

- UL 9540 standard for stationary storage and other codes
- Energy Storage Integration Council, guidebook and lessons learned and a possible unified standard for installation of energy storage
- National Fire Protection Codes





15 Minute Networking Break





Non-IOU Experience with Energy Storage

Industry Speaker: GreenCharge and California Energy Storage Alliance (CESA)

- ***What are the non-IOU experiences installing and operating storage devices for a wide variety of applications?***
- ***How should safety standards be effectively monitored and communicated with the Commission and the public?***





LUNCH





IOU Experiences Installing and Operating Energy Storage Technology

Speakers: SDG&E, SCE, PG&E

- ***What are the utilities' experiences installing and operating storage devices for a wide variety of applications?***
- ***What utility storage safety standards and certifications are applicable to storage devices connected to the distribution grid, located at utility substations, or co-located with power generation facilities?***
- ***How should safety standards be monitored and communicated with the Commission and public?***





15 Minute Networking Break





Discussion

- **What inspection protocols or checklists should SED add to its substation and generation facility inspections?**
- **Potential changes to G.O. 167 and 174?**
- **Next steps for SED and energy storage safety.**





Next Steps

**Workshop Reports to Circulate
September 18th**

**Opening Comments Due
October 2nd**

**Reply Comments Due
October 9th**





Thank You!

Formal proceeding documents are found using the Rulemaking number R.15-03-011

Other documents, including workshop presentations, staff reports, cost-effectiveness analysis, and other background papers are on the CPUC web site:

<http://www.cpuc.ca.gov/PUC/energy/storage.htm>

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